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California Coastal Commission
c/o Sea Level Rise Workgroup
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Dear Sir/Madam:

Moffatt & Nichol (M&N) is a coastal planning and engineering firm with extensive experience throughout the state of California. M&N has reviewed the 2013 Draft Sea-Level Rise Policy Guidance document and provides the comments below. Our comments are tempered by experience with both private and public projects at all scales, and from decades of permitting, design, and public meeting participation. We applaud the effort of the workgroup and encourage further dialogue on this subject matter. This is one of the most critical periods in the history of our discipline with significant uncertainties of future conditions. A conservative approach in planning and engineering is appropriate with greater unknowns for the future, but certain recommendations in the guidance document appear to be potentially overly conservative in our opinion at the present. A delicate balance must be struck between protection, economics, and public and private property rights.

1. The guidance, specifically Appendix B, outlines an approach that analyzes impacts to a given coastal site from a combination of long-term shoreline erosion, dynamic water levels (storm surge, 100 year wave run-up or conditions greater than the 100-year storm wave event), and static water levels (high tide plus SLR). The approach by state agencies recently has been to apply the high-end of the range of sea level estimates (5.5 feet), while not applying the projection of 3 feet. Under extremely conservative planning, it may be more appropriate to consider the projection rather than the high end. The combined probability of the conditions mentioned above with a maximum sea level rise estimate represents an event with an unknown, but low probability. Individual CDPs and LCPs should have discretion in selecting reasonable combinations of water levels and conditions for a specific site to inform setback limits, adaptation measures, etc.
2. The typical range for tsunamis is referenced as 20 to 26 feet in the guidance document. Although the destructive nature of these events is acknowledged, the southern California region may have experienced the maximum far-field tsunamis (from Chile with a magnitude of 9.5 in 1960 and from Alaska with a magnitude of 9.2 in 1964). Thus the water surface elevation changes experienced from these events may be the maximum to be expected in the region. Existing water level data indicate southern California may experience water level changes on the magnitude of 4 feet on a decadal basis from these events (San Diego Region Sea Level Rise Study by M&N 2013). Recent

experience in other areas indicates that design to accommodate high return (ebb) flow velocities may be more critical than designing to exceed wave heights. Designs to accommodate extremely high water levels could be costly and may result in impacts to other coastal resources (e.g. views). M&N recommends that the discretion be applied in the consideration of these events in design.

3. The document calls for provision of maximum public participation in planning and the regulatory processes. We understand the need for public input but caution the workgroup that over-dependence on public comment and participation can significantly slow the process and in some cases present unnecessary obstacles. Moderation in applying the public participation process is recommended.
4. The document indicates that when there is a range of erosion rates from historic trends, the high rate should be used to project future erosion with rising sea level conditions. Latitude may be needed in this approach to allow for lower estimates depending on site-specific conditions. For instance, if historic erosion has occurred through relatively erodible material, but future erosion will encounter more resistant material and thus slow the erosion rate.
5. Regarding hard coastal protection, the guidance indicates that CDPs should require that hard protection be monitored for damage from sea-level rise hazards, that permits be re-opened after some time period to assess effectiveness in light of sea-level rise, and that options for removal be incorporated into the design, in the event the structure may no longer be useful or appropriate in the future. We recommend that another approach be considered that consists of further improvement of the structure to withstand future conditions if it will not adversely impact littoral sediment transport patterns or if its effects can be completely mitigated.

Thank you for the opportunity to comment on the guidance document and please contact us with any questions or comments.

Sincerely,

MOFFATT & NICHOL

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Chris Webb, Supervisory Coastal Scientist